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NATIONAL MANPOWER DATA AND INFORMATION SYSTEM: THE CASE OF GHANA

Introduction

The object of the "Study on national manpower data and information systems" can be summed up as follows to:

"(a) help the national authorities evaluate the efficiency of measures employed for the collation, treatment, analysis, storage, utilization of statistical data and information relating to planning, development and utilization of human resources. This overall operation should:

(b) bring out: (i) the merits of the system in use and examine how to reinforce and consolidate them; (ii) shortcomings, gaps and constraints and consider how to remedy or remove them and how to make appropriate substitute work in their place;

(c) draw out possible remarks and observations on: (i) staff employed, their qualification, their efficiency, maximum staff establishment requirement, place of work, the work set out and the work completed; (ii) the building, plant and machinery, equipment, work environment; their state, their quality in terms of work done; (iii) the nature, the quality, the quantity (volume) of results and of the output obtained; (iv) methods and techniques of work, administration management; (v) existing links and their degree of efficiency and work along with other services, ministerial establishments, users and other persons or organizations affected by these activities;

(d) make proposals, as regards staff, for the types of in-service training and improvement programmes necessary to staff efficiency, safeguard their careers and at the same time increase work productivity;

(e) take advantage of the consultative mission in the country to collect useful final statistics available on employment and workmanship in the key sectors of the national economy".

According to the "Webster's Third New International Dictionary of the English language unabridged", the word "manpower" means "the strength (as of nation, community, or industry) expressed in terms of available persons; personnel available or competent to serve ..." That is, to say, "manpower" related to that chunk of the population referred to as labour force identifiable according to the United Nations definition as the "economically active". Although the "economically active" is argued by some as including those who actively contribute to the production of the aggregate output of the nation, i.e. the employed, one can conserve energy by not dabbling into this controversy and accepting the United Nations' definition for the labour force. At least, it would be clear that manpower or the labour force is the strength, i.e. the economic strength on which society depends for its existence: that is, those who set up the farms, the factories and the offices where to work are the core of the term manpower".

To be able to provide the basis for the existence of society, manpower makes at least two demands on society. First, manpower must be maintained and trained. Then, it must be found the means to set up the farms, the factories and the offices where to work. All these are requirements embracing problems of planning, development and utilization of human resources. Ghana entered the era of scientific economic planning in October 1961. Before then, planning had taken form usually referred to as "colonial economic planning". Colonial economic planning is the type of planning which involved government departments and institutions preparing their programmes

of expenditures over the "plan period" and submitting them to a central ministry where these ststements were coordinated into a plan. In the development of such plans, statistics had played a minimal role.

The new planning machinery which introduced scientific economic planning into Ghana from October, 1961 consisted of a National Planning Commission: on the policy-making side, the machinery included a body of officials, academics, businessmen, trade union leaders and other persons with specialized knowledge; on the official side, the planning machinery consisted of the Office of the Planning Commission which is responsible for the organization of the actual production of development plans: the Office of the Planning Commission is now a division of the Ministry of Finance and Economic Planning. As a further development in the new planning machinery, a Manpower Board was established as a corporate body under the Ghana Manpower Board Decree, 1968 (N.L.C.D. 313), charged with the responsibility of advising the Government on all matters affecting the development of the manpower resources of the country and of exercising general surveillance over the training, supply and utilization of the human resources of the country at all levels. In detail, the functions of the Board as specified in the Decree are as follows to:

(a) formulate plans and policies for the development, education and training, and for the effective utilization of all the human resources in all sectors of the national economy;

(b) review and evaluate the manpower aspects of national economic plans and the main priorities for providing the needed supply of manpower;

(c) advise and evaluate plans on the development of a national system of education and training with the object of meeting the manpower and employment needs and achieving the objectives of national development;

(d) review from time to time the policy of the Government on population and migration and advise on measures to be taken to ensure the fullest utilization of the human resources of the country;

(e) develop plans and programmes to promote, expedite and coordinate the production of needed skills through actual employment experience and work-related training within employing establishments and in cooperative programmes which link formal schooling with work experience;

(f) develop and ensure their implementation by appropriate bodies, plans, programmes and projects designed to reduce unemployment and check the causes thereof;

(g) initiate policies, plans and programmes for periodic assessment of the manpower resoruces and requirements of the country in consultation with and utilizing the services of such agencies as the Central Bureau of Statistics, the Ministries responsible for Labour and Education, the Scholarship Secretariat, the Council for Higher Education, the Universities and other public and private bodies;

(h) maintain a continuous and close contact generally with employing authorities and agencies of the Government which are strategically concerned with manpower problems, and in particular with the Incomes Commission, the Scholarship Secretariat, the Ministries responsible for Agriculture, Education, Health, Industry, Labour, Social Welfare and Community Development, the Management development and Productivity Institute and other affected agencies both permanent and temporary in order to have up-to-date information on their activities; and

(i) carry on such other functions as are necessary for the implementation of the provisions of this Decree".

The Manpower Board is supported by the Manpower Secretariat, a division of the Ministry of Finance and Economic Planning. This Secretariat handles the executive and technical aspects of the activities of the Manpower Board including the presentation of technical papers, analysis of and advice on issues presented to the Board for consideration. The Manpower Secretariat is organized into the following sections:

(a) Labour Market Employment Development and Planning Section: The Section operates in three broad areas, namely: Occupational Analysis and Vocational Training; Labour Market Analysis and Employment Outlook; and Employment, Development and Planning.

(b) Education Development and Planning Section: The operations of this Section embrace the following: Education planning and effectiveness of the educational system; and education in relation to manpower needs and employment.

(c) Demographic and Statistical Service Section: The Section constitutes a pool where basic data are collated and maintained. It also undertakes statistical work for the other Sections of the Secretariat and helps in the design and planning of surveys.

The policy guiding the Manpower Board for the development of manpower resources in Ghana is defined as follows:

"(a) maximum and efficient utilization of the nation's manpower and avoidance of wastage of skills and training by purposeful direction, guidance and accurate placement of trained and skilled members of the labour force;

(b) periodic review of the national system of education and training schemes with a view to their effective adaptation to changing manpower requirements;

(c) emphasis on building flexible and dynamic labour force with skills which are adaptable to occupational shifts, technological changes and industrial growth;

(d) increased emphasis on the development agricultural skills, especially in agricultural education, better technical support for farmers and rural communities and the provision of qualified agricultural specialists;

(e) emphasis on building those skills which are basic to the development of the country, such skills as management at all levels, supervision and foremanship, professional and sub-professional occupations, and middle level mechanical skills and know-how which are interchangeable between occupations and industries;

(f) the study of the population and migration policy in relation to the growth of the labour force, the scale of employment, the rate of unemployment and the burdens of dependency."

The prime objective of manpower planning in Ghana is to promote the full and productive employment of human resources. Thus, employed manpower constitutes the motive force behind development efforts. Until the creation of the Manpower Board, Ghana had never had a governmental technical body sufficiently equipped to make use of statistical data in the formulation of decisions for manpower planning and development. The good thing, therefore, emanating from the development of the

statistical service since the new planning machinery came into being is the effect it has produced, being the creation of an awareness of the value of statistics in decision-making. For the formulation of these types of decisions, there are two major roles statistics can play. First, statistics are required for the formulation of manpower policy and also in the preparation of realistic manpower development plans. Second, statistics are required for its functional role in the evaluation of the progress and success of the execution of the manpower development programme. Invariably, statistics should be needed relating to the social and economic characteristics of the manpower resources available, its size, the rate at which these are growing, sex composition, age distribution, urban/rural composition, literacy, type of activity, occupation and industry. Of the manpower resources available, it is important for planning purposes to know how much of the labour force is unemployed as well as the rate at which population is growing and also the rate of growth of employment opportunities: although statistics need not be relied upon as panacea for all decision-making issues relating to manpower planning, it at least can provide a better perspective for the formulation of remedial actions in respect of the foregoing issues.

In 1960 Ghana's population was 6.8 million; of this 3.5 million persons were in the potential labour force (all people aged from fifteen to sixty years); but only 2.56 million were actually working. The comparative position in 1970 was as follows: total population 8.5 million; potential labour force 3.3. million; persons actually working 3.1 million. On the basis of the above information, Ghana's labour force has obviously been growing rapidly. According to preliminary results available, Ghana's population in March 1984 has been estimated at 12.2 million; of this figure, a guesstimate of the potential labour force embraced by this population is around 4.8 million; this estimate would probably be on the high side because there has been taking place a large exodus of the Ghanaian work force, persons involved leaving the country for greener pasteurs elsewhere; it is probable that even now people are still leaving the country; however, even if this figure 4.8 million is plausible, the proportion actually working is likely to be smaller than the 1970 labour force actually working: for, current economic conditions in Ghana have deteriorated so much that they cannot favourably compare with the conditions that prevailed supporting the size of the 1970 labour force that actually worked then. Nonetheless, a growing population such as the 1984 population Census has revealed about Ghana implies a problem; that is, there are more mouths to feed and there will eventually be more hands to work. To grapple with these problems, there is need, therefore, for an information system to monitor manpower developments so that informed decisions be better formulated to resolve the problem of how to feed the additional mouths and to create more job opportunities for the additional hands that in due course will be available for work.

The Role of Manpower Planning

Manpower resources raise some of the most difficult problems connected with economic development. Generally, these problems may be divided into two broad categories. First are those difficulties arising from effort to deflect the Nation's manpower from the traditional, social, political and legal observances and the old work habits that stand in the way of evolving an industrial work-force. Second are the many problems coming from the necessity to recruit, shape, maintain, and direct a diversified industrial labour force once the old customs are eliminated or at least adapted to meeting the needs of the new society.

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No matter what the degree of development, the manpower supply-demand relationship in most nations is typified by shortages and surpluses far more consistently than by equilibrium within the labour market. Even in periods when approximate balance exists in the total relationship, there may be persistent and sometimes severe imbalance in certain occupational categories. A stable, developed economy can tolerate this lack of balance with less difficulty than can a developing economy. In the latter, both manpower shortages and surpluses present particular hazards since these countries cannot afford to permit waste of time and human resources nor do they have institutional arrangements that can lighten the hardships of workers temporarily unemployed.

It is uncommon to regard developing countries as lands of manpower shortage. The generally accepted view is that they have large numbers of persons available for any work that needs to be done. This popular misconception is dangerous to planning because of the hazards specific manpower shortages pose to timely fulfilment of development goals in these countries where so much must be done in a relatively short time. The Ghanaian scenario is that there is a lot to do to develop the country: Ghana needs to take ten years to do what it had taken the industrialised countries hundred years to accomplish.

It is of little use, for example, to plan for an improved level of public health without anticipating the need for training physicians, nurses and medical technicians to implement the new programme. Mechanisation will call for machinists and machine operators and improved agricultural processes will require agronomists and farm machinery rapair-men. Briefly, there can be no progress towards industrialisation without the timely and appropriate development of those skills necessary to build and man the enterprises and institutions essential to such an economy. Most of all, attention must be given to providing for an adequate supply of high-level manpower, i.e. professional, technical and managerial categories, indispensable to social and economic development in any country.

Planning for these workers must be an integral part of the initial planning for economic development. Anticipating the numbers needed and arranging for their training must occur well in advance of the actual demand for their services.

Furthermore, planning for these workers must be adequate. A sufficiently large need for them must be anticipated because the greatest proportionate increase in the future demand for workers will occur in the professional, technical and managerial occupations. Unless the skilled and high-level manpower becomes available in sufficient numbers when needed, development will falter, if not fail, bringing with it consequences that will be beyond manageable limits.

Contemporary economic development does not proceed into an uncharted future. Rather, it is specifically designed to attain rapidly the promise of high mass consumption, a goal which can be achieved only when manpower is properly utilised in appropriate combination with capital and natural resources.

Manpower planning presents the means to lessen or prevent blockages in economic development resulting from shortages of appropriate manpower and to forestall the dangers to social and political stability implicit in manpower surpluses. It is concerned at the outset with the development of high level personnel as well as manpower resources at all skill levels.

For the longer term, manpower planning is concerned with preparing new generations of manpower. Such planning also seeks to further develop already-employed manpower through training within industry.

As a potential for preventing manpower surpluses and or shortages, manpower planning is concerned with formulating those policies and programmes that will lead to optimum utilisation of the total manpower potential. Where the developing sector of the economy can absorb but a small portion of the country's available work-force, manpower planning must extend its concern beyond the immediate problems of the industrialized sector of the economy to include the problems of the pre-industrial sector.

Fundamental to this planning exercise, would be the availability and utilization of institutional and staffing capabilities for indentifying, collecting, processing and analysing relevant statistical data and information. The extent to which these capabilities are developed and used in Ghana particulrly for manpower planning is discussed in the rest of this study.

Data and Information Systems for Manpower Planning

(a) Existing Framework:

Development indicators for manpower planning appearing in the "Manpower and Employment" chapter in the Five-Year Development Plan 1975/76 - 1979/80 relate to the following:

The labour force; industrial distribution of the employed labour force; growth rate of the labour force; age structure of Ghana's population; dependency ratio; educational attainment of the work force; shortages of high-level as well as middle-level categories of skill; expatriate employment; rate of growth of recorded employment, unemployment; age-specific unemployment rates; rural/urban unemployment rates; indicators of social amenities, e.g. electricity, water supply, health centres and posts, rural housing and schools; unemployment in the age-group 15-24; inter urban/rural migration;

The foregoing list of manpower development indicators is by no means comprehensive. Although minimal, the list is at least indicative of what obtains by way of demand for statistical material to buttress manpower planning. As a matter of fact, the greater part of the basic statistical series required for manpower planning has long been available in Ghana. Since demand for them for manpower planning purposes had not existed hitherto before the advent of scientific economic planning in Ghana, the development of these series had not been consciously geared to service manpower planning. In point of fact, never before in the history of the statistical service in Ghana had there been such a great demand on it for its services as when Ghana entered the era of what is sometimes called comprehensive development planning, opposed to development planning usually referred to as "colonial economic planning".

The source of the statistical materials used to concretize the foregoing development indicators is indicated as follows:

(i) Population Census
Ghana is one of the few African countries with a long history of population data collection and a wide range of demographic data are easily available. This section is devoted to providing information on pupulation censuses.

Population censuses provide a general base for labour statistics. These give data relating to age, occupational and industrial characteristics of the labour force, their urban/rural composition, literacy level, type of activity and occupation. Population census-taking in Ghana dates back to the pre-colonial era: these censuses prior to Independence are better described as counts rather than as censuses, beginning with those conducted by traditional rulers and by the Colonial Government from 1881 through 1941, when the Second World War interrupted the sequence, and then again in 1948. In terms of methodology, training and reliability, however, census-taking in Ghana may be said to date from the firs Post-Independence Census taken in 1960 with United Nations support. A second Post-Independence census was undertaken in 1970 and a third one was taken in March 1984.

Information is collected for purposes of the population census by means of interviewing: the method is in conformity with household inquiries procedures. For ease of collecting the information; first, the country is divided into enumeration areas (EAs); each EA defined in terms of its physical boundaries is allocated to one enumerator; an urban EA usually contains about 1,000 persons and a rural EA about 700 persons; the EA is sub-divided into "housing units" defined to be "a structural separate and independent place of abode" comprising: (a) house or compound containing at least a household; (b) houses containing persons living in institutions, e.g. hospitals, army barracks, boarding schools and prisons; and (c) non-residential places of abode, e.g. verandahs of houses, in front of stores, petrol filling stations and markets. After these issues are settled, the enumerator, equipped with a map, goes into the field, locates the EA of his assignemnt and conducts enumeration by canvassing; each individual is enumerated separately and after canvassing, the individuals in the "housing units" are grouped into households. The enumerator is guided in the process by means of a questionnaire the Census Questionnaire" to collect population census information.

(ii) Population Surveys

The population surveys conducted so far have been integral parts of the 1960 and 1970 population censuses; in 1960, this survey was titled "1960 Post Enumeration Survey" and the 1970 one was "the 1971 Supplementary Enquiry Survey". The major objective of these surveys was to enable inquiries to be conducted into additional topics which could not be covered in the main censuses. There is a plan underway for a similar population survey to be conducted following after the 1984 Population Census.

(iii) Labour Survey

Labour statistics constitute another important statistical series in manpower planning. For "labour is a key resource in production" and the output of goods and services in the economy is very largely dependent upon the amount of labour employment and also the average output per man-hour of work. The minimum statistical information needed about labour includes: size of the employed population by industrial break-down; occupational characteristics of the labour force; the respective categories of the labour force, i.e., employees, self-employed, unpaid family workers;

labour unemployed; labour voluntarily unemployed; home-makers; students (potential labour force); vocational trainees (potential labour force); disabled; etc.

Another information system exists whereby information is regularly collected on annual and quarterly bases from recorded employees under the provisions of the Statistics Act. The statistics collected cover employment and cash payments to employees in civilian employment. As can be deduced, this information system investigates only employment in the modern sector, leaving out of purview therefore, a large chunk of employment information relating to the labour force occupied in the traditional or the informal sector. The survey is the establishment type of inquiry.

(iv) Manpower Survey

With the setting up of a Manpower Board, the position was realised that there is a need for a manpower survey. A comprehensive manpower survey was, therefore, launched in October, 1968 aimed at to take stock of available skills at all levels and their utilisation in establishments employing 20 or more persons. The survey is also to assess the existing and prospective needs and provide insights into the manpower situation for the development of appropriate strategies for meeting the needs and correcting the existing imbalances which characterise the labour market and affect the volume of unemployment. Apart from a synoptic type of information published in the Five-year Development Plan 1975/76 - 1979/80, the results of this survey have not been published.

This manpower survey was an establishment type of inquiry. Ever since the 1973 - 75 survey, this inquiry has not been repeated; but it should be useful if it were made a recurrent survey.

(v) Education Survey

As already indicated elsewhere, one of the roles of manpower planning is to prepare new generations of manpower. The teaching of skills and other attainments that are needed for the running of an economy must be monitored time and again, so that basis can be laid for informed decision-making.

An information system has been instituted enabling that periodical information be collected from educational institutions operating in the country. Forms of questionnaire have been designed and lodged on the school, college or institute which entities have been established as the reporting unit for the count of pupils, students and teachers. Questions which are included in the form range from: in the case of secondary school - particulars of school, students enrolled by form and sex, particulars of scholarship holders by form sex and body offering the scholarship, teaching staff, list of pupils who attended class; in the case of teacher training college - particulars of college, students enrolled by year, type of course and sex, teaching staff, list of students who attended class for at least one day during (a selected month); in the case of commercial and technical institutes - particulars of institute, full-time students enrolled by sex, type of course and year, day-release and sandwich course students enrolled by sex, type of course and year, evening class students enrolled by sex, type of course and year, teaching staff, list of students who attended class for at least one day during (a selected month).

(b) Ideal Framework:

In his publication "Population Dynamics of Ghana", Dr. [illegible] Mehta, ILO Manpower Planning Adviser) made use of a number of manpower development indicators. These are:

> Sex and age composition of the population; size and growth of the labour force; major economic sectors of the labour force; industrial distribution of the labour force; occupational distribution of the labour force by level of education: employment status of the labour force; employment of the labour force by public and private sectors; regular wage-paid employment of the labour force in public and private sectors; non-Ghanaian labour force by industry; rural/urban distribution of labour force; rural/urban participation rates; inter-regional differences in participation rates; inter-regional migration; unemployment and under-employment; unemployed labour force by sex; unemployed labour force by region; unemployed by sex and region; unemployed by age; rural/urban distribtuion of unemployed by age and sex; educational output versus job opportunities, attitudes, expectations and aspirations; unemployment among middle and secondary school leavers; unemployment among technical graduates; imbalance between demand for a supply of educated manpower; structure of manpower shortages; skilled workers' level, supervisor's and technician's level, professional and sub-professional level; top management and executive level; pattern of education and manpower development.

To emphasize the informative value attached to the fore-going development indicators, Dr. Mehta suggested the following guidelines for education and manpower development:

(i) A comprehensive, coordinated and integrated strategy of human resources development planning in Ghana should include long-term aims and instruments for the development of human capacities, knowledge and skills, notably through education, vocational training and management development.

(ii) Such a strategy should be based on a systematic and scientific assessment of the current education and manpower situation in the country; the estimated demand for and supply of various categories of strategic manpower; the likely imbalances in the demand-supply relationships; the social demand for education; and the specific measures that appear necessary to augment the stock of such specialized manpower as is immediately needed for the implementation of the economic and social development programmes.

(iii) An important pre-requisite in the formulation of well-desi ned and well-conceived programmes for education and manpower development is a systematic assessment of the short and long term requirements of education and strategic manpower at various levels of skills, and then, in the light of such assessment, to estimate the approximate amount of investment in education and training needed to meet the anticipated shortages and to up-grade the existing levels of skills.

(iv) Having established the future educational manpower and training requirements of development planning, it might be desirable to establish an order of priority for the drawing up and development of education and training programmes on a phased basis, and in a manner that would allow for the most rational and economic utilization of the limited resources.

(v) Adequate consideration should be given to the education and training of the employed manpower who had neither any education nor any basic vocational training in the trades and occupations they are now engaged in. Training of employed manpower offers prospects of immediate improvements in individual performances and substantial gains in productivity and output.

(vi) The future pattern of educational development must conform to the national needs and priorities, and must seek to marry more closely the world of work and the world of the school and the university in order to bring attitudes and aspirations into closer harmony with the opportunities offered by the environment.

(vii) There is vital need for an urgency of adequate coordination of education and training programmes; closer cooperation between the educational and training institutes on the one hand and the industry on the other; adequate training of industrial and educational instructors and supervisors; provision of adequate shop-floor facilities for practical training; substantial improvements in the qualitiative aspects of education and training; broadening the scope of training programmes so as to include new trades and occupations in which the existing training facilities are either completely lacking or grossly inadequate; minimising the incidence of all forms of wastages in education and training; and reducing, to the extent feasible and desirable, the incidence of "brain-drain" from Ghana to developing countries; and inducing the Ghanaian trained manpower working abroad to return to their home-land."

It is worthwhile in this study to also take into consideration the framework on manpower data systems recommended by the International Labour Organization (ILO). In this respect, the ILO has identified aspects of employment to include the following: the production aspect; the income aspect; and the social integration aspect. It then reviewed the labour force framework recommendations and suggested proposals for modifications and elaborations as follows:

(i) reformulation of the present framework in terms of the economically active population, covering the currently active population (the labour force) and the usually active population;

(ii) distribution between two categories of the labour force: "paid labour force" and "not paid labour force". The "paid labour force is divided into the employed and the unemployed. The other category, "not paid labour force" is divided into those "with work" and those "without work";

(iii) introduction of a separate category to account for persons not economically active not contributing to output and welfare;

(iv) provision for two measures of unemployment, one based on a restricted definition following the existing international recommendations, and the other based on an extended definition incorporating certain categories of persons not seeking but available for paid employment;

(v) integration of measurement of visible under-employment into the main framework, but not that of invisible under-employment;

(vi) provision for the measurement of the relationship between employment and income in a separate but related framework.

The Manpower Statistical System of Ghana

(a) As it exists:

This section of the study is to give an account about organizational arrangement existing in Ghana making it possible for statistics to be collected, processed and made available for manpower planning. Since these arrangements are part of the statistical system of Ghana, it will be informative to make some brief comments about the general system in order to provide a framework within which manpower data system operates in Ghana.

The collection of official statistics in Ghana is vested by legislation in the Central Bureau of Statistics. When the organization was established in 1948, it was designated the Office of the Government Statistician. It has always operated as a service agency in the Civil Service; now, it serves under the ministerial supervision of the Ministry of Finance and Economic Planning. Although it was in 1948 the Government had for the first time set up an agency to be responsible for the collection and analysis of statistical data, statistics as a subject has a long history dating backward much earlier from this date: for instance, population censuses have been conducted since 1891.

The various organizational arrangements which obtain in the general statistical system of Ghana, enabling the development of manpower data system, are described in the following paragraphs:

(i) Demography and Social Statistics Division

This agency is a division of the Central Bureau of Statistics. It is responsible for the development of statistics relating to demography including such subjects as population statistics, vital statistics and migration statistics. The subjects covered at present in the area of social statistics relate to education and judicial events.

Whenever a population census is to be taken, which is the responsibility of the Government Statistician under the Statistics Act, a Census Office is created; this machinery is usually an ad hoc semi-autonomous inter-departmental agency, with the Demographic and Social Statistics Division and the relevant units of the Methods and Standards Division (both being divisions of the Central Bureau of Statistics) forming its nucleus. Most of the personnel for the various sections of the Census Office such as field organisers, publicity officers, accountants and accounts personnel, storekeepers, purchasing officers and the administrative staff including the head of administration are seconded from various government agencies for the conduct of the census: These personnel constitute the census operational staff; for ensuring effective and successful implementation of census projects, national committees with inter-departmental representation are always set up.

(ii) Labour Statistics Section

This Section compiles statistics of employment, wages and earnings and other economic and social characteristics of the labour force. These statistics which are of the primary type are based on information collected from recorded establishments by means of mail questionnaires combined with interview. Information is collected from both private and public establishments in respect of December of each year. There used to be collected quarterly returns from firms but these are only establishments employing ten or more persons: these returns are now collected on half-yearly basis.

(iii) Education Statistics Unit

This Unit is responsible for the compilation of education statistics which are based on material collected by the Ministry of Education. In the collection of the basic material, the Education Statistics Unit of the Central Bureau of Statistics assists the Ministry in an advisory capacity concerning collection procedures. The results of the information collected are processed by the Education Statistics Unit of the Bureau and published under a joint project of the Ministry of Education and the Bureau.

As at May 1984, the three above-mentioned agencies of the Central Bureau of Statistics employ 189 persons, made up of the following grades; Professional Officers 10(ten); Middle-level Officers 62; and other ancillary staff 117. All the professional officers working in the Demographic and Social Statistics Division are graduates in the disciplines of sociology and geography; some of them have undergone post-graduate diploma training in population studies. Of the middle-level officers, these are mainly holders of Secondary School Leaving Certificates or G.C.E. "Ordinary" Level Certificates; the rest comprise those who have attempted the GCE "O" level but failed: they were found suitable for employment with the Central Bureau of Statistics; after preliminary training, these have made satisfactory progress at work and got promoted to some of the senior grades in the middle-level positions.

(iv) The Demographic and Statistical Service Section

This Section has been created by the Secretariat of the Manpower Board. It is a pool of the Secretariat with functions involving the collation and maintenance of basic statistics relating to manpower. It also undertakes statistical works for the other Sections of the Secretariat and helps in the design and planning of surveys.

As already indicated elsewhere in this study, this Statistics Section of the Manpower Secretariat has conducted one manpower survey, being a comprehensive survey to take stock of available skills at all levels and their utilization in establishments employing 20 or more persons. The survey attempted also to assess the existing and prospective needs and provide insights into the manpower situation for the development of appropriate strategies for meeting the needs and correcting the imbalances which characterise the labour market and affect the volume of unemployment. The results of this survey have not been published; but from time to time, information is extracted from the survey for various uses. This manpower survey has not been repeated ever since.

The Manpower Secretariat as one body started operation with four senior members of staff, all being Ghanaian graduates supporting a Ford Foundation Manpower Adviser; the Adviser has withdrawn from Foundation the Manpower Secretariat for some time now. Since then, the Secretariat is run completely by Ghanaian nationals. As of now, the staffing position has expanded, having increased to 26 persons. Of this number three senior members supported by two middle-level officers are manning the Statistics Section of the Secretariat: the senior members are all graduates in economics, statistics and psychology.

(b) Plans for future development of the Statistical System

The future development of the statistical service is indicated in the PNDCL 42, Section 39. There, it is provided that there be established a "Statistical Service which shall form part of the public services of Ghana and shall incorporate the existing Central Bureau of Statistics. There shall be a Statistical Service Board which shall consist of: (a) a Chairman and not more than five other members appointed by the Council; and (b) the Government Statistician ..." Plans for the setting up of the Statistical Service as prescribed under the PNDCL 42 have advanced very well and in the not-too-distant future such a service will become operational. In effect, this new measure on the future of the statistical service will be the creation of the statistical service outside the Civil Service but the service will operate under a Board as a statutory body.

There is need to sustain efforts of the present set-up of the Demographic and Social Statistics Division of the Central Bureau of Statistics, so that a continuous collection and analysis of population and related data can be reorganized and strengthened. Plans for achieving this desire are awaiting the coming into being of the Statistical Service Board. For, what present organizational arrangements are, it is during population census-taking that an adhoc body emerges; such an arrangement makes the machinery for collecting vital information about the Ghanaian population so temporary in nature. There is, therefore, the need to set up a permanent body under the aegies of the Central Bureau of Statistics to permit the continuity of the accumulation of experience and practice in data collection and analysis, also in administration, accounting and field organisation.

A programme is under consideration aimed at producing household statistics to embrace such subject matters as demographic characteristics, health food, consumption and nutrition, housing conditions and facilities, educational characteristics and cultural activities, employment and economic level of the household. This programme will really involve the setting up of a machinery, such as a Household Statistics Section, in conformity with the United Nation's Household Survey Capability Programme; this arrangement if it becomes possible will ensure the execution of a continuous household surveys programme and information relating specifically to manpower data system not yet been collected will be covered.

(c) Facilities available other than human resources

Generally speaking, facilities other than personnel available for manpower data system development though not adequate cannot be disparaged. This section of the study will be addressed to: (i) field organisation; (ii) office accommodation (iii) data processing facilities including storage arrangements available, and (iv) plant, equipment and vehicles.

(i) Field Organisation

Whereas the Demographic and Statistical Service Section of the Manpower Secretariat is a small entity, the Demography and Social Statistics Division of the Central Bureau of Statistics is a large one. However, neither of these entities maintains a permanent field organisation to be linked to manpower data system. Thus, when a population census is due to be taken, ad hoc arrangement is made to create a field force. This field organisation employs teachers all over the country who are trained to become census field enumerators. This force is disbanded when field work ends.

Field organisation arrangements with regard to labour force and education surveys are different. There is a permanent field organisation attached to the Central Bureau of Statistics: its members, at present numbering about 271, are located all over the country. These officers undertake the conduct of the labour survey; as this survey is the establishment type of inquiry, the role of the field organisation in this exercise is essentially the distribution of questionnaires to the recorded establishments; after the forms are completed they are then collected and sent back to Head Office for processing and analysis; the labour force survey forms are not in all cases delivered to the establishments by the field men; in some cases, these forms are mailed to the establishments but the completed forms are collected and dispatched to the Head Office by the field men. Another vital service the field men render in the course of the labour force survey is the collection of information which is used for building up the frame of establishments. In the case of education survey, it is the Ministry of Education that assists in distributing the forms to the various schools after the questionnaires are designed by the Bureau. When the completed forms are ready, they are returned to the Ministry, from where they are subsequently submitted to the Central Bureau of Statistics for processing.

(ii) Office Accommodation

In spite of the fact that the other divisions of the Central Bureau of Statistics are, so to say, adequately housed, the Demography and Social Statistics Division does not have adequate accommodation. This inadequacy of accommodation facility became worsened when the Division expanded into a larger component making up the Census Organisation for conducting the population census.

As for the statistics section of the Manpower Secretariat, its offices are housed in the Ministry of Finance and Economic Planning. However, the accommodation facilities available are not adequate; this coupled with other factors of constraint make this inadequacy a factor hampering the development of the Section.

(iii) Data Processing Including Data Storage Facilities Available

The use of mechanical data processing facility by the Central Bureau of Statistics has a long history; to be precise, the history dates back from 1951 when the first kind of punch card equipment was installed, being Hollerith System type; later, this was supplemented by Power Samas; subsequently, all two were superseded by IBM Computer Machine (first 1401 Model 17, then later, Model 360/30) and as of date, the IBM Electronic Computer System has been replaced by Wang Computer System, VS with 512 KB Main Memory. The need for a mechanical data processing system stems from the requirement that the processing of bulk data of many kinds with which the Central Bureau of Statistics is associated be speeded up.

The Wang Computer has the diskette drive facility, which makes this electronic computer model more in keeping with the general trend in data entry system now in vogue. Data available are only keyed in onto tape directly and then stored there for use. With this Wang Computer, of very recent technology, computer facility available to the Central Bureau has been upgraded.

In addition to storage on tape facility available in the Computer System processed information is published making it possible for data users to be made aware of information available. There is a laid-down provision that data stored on tape are so maintained for at least five years before they are destroyed. Thus throughout the period, whoever wants a disaggregation of data into such detail as will not infringe confidentiality requirements is easily attended to.

Data from population survey, from labour and education surveys are mechanically processed.

(iv) Plant, Equipment and Vehicles

(1) Plant

For its printing needs, the Central Bureau of Statistics maintains a small-scale printing outfit. The machinery comprising this printing plant includes photographic cameras and duplicating machines (Gestetner model). Apart from certain selected items of printing work, the Bureau's printing requirements are undertaken in this outfit: the printing of publications, questionnaires and other statistical reports are examples of printing work undertaken within the Central Bureau of Statistics. Thus, only large-scale printing work such as the printing of population census questionnaires and census reports are contracted out to the State Publishing Corporation. It is the long-term plan of the Bureau that all printing requirements be met from its own internal resources; so the necessary capacity is gradually being built up.

(2) Equipment

Office machines including items such as Typewriters, Calculating Machines (desk type) copying machines, etc. referred to in this context as equipment are available to the Bureau. These items play very essential role in the operations of the Central Bureau of Statistics.

(3) Vehicles:

One of the vital services a statistical service requires is facility that will make its field force mobile. In a developing country such as Ghana is, public transportation is relatively very little developed. One cannot therefore, rely on such public transport system as is available to utilise in the course of the development of a statistical service. For field work requirements, therefore, the Central Bureau of Statistics maintains a fleet of vehicles. Apart from work, these vehicle facilities are extensively used for field work, i.e. for gathering raw data. The type of such vehicle facilities available to the Bureau include motor saloon vehicles, land rover vehicles, motor buses, motor bikes and bicycles.

Set-backs and Recommendations for Remedy

As will be clarified below, the progress that Ghana could have made in the development of manpower data system has been beset by a number of problems. From points made earlier, it will be lear that the Central Bureau of Statistics is the organisation in Ghana exercising major responsibility in data system; the other organisations already referred to, such as the Demographic and Statistical Service Section of the Manpower Secretariat and the Ministry of Education have not made much significant contribution to the development of manpower data system. However, the set-backs and suggestions for remedy, which this section will address itself to, will implicitly cover these organisations with the Central Bureau of Statistics constituting the domain of reference.

(i) Staffing

The quality of conditions of service obtaining in any gainfully operating organisation is basic in determining the ability of the organisation (a) to attract and (b) to retain staff. The conditions of service obtaining in the Central Bureau of Statistics and for that matter in the Ghana Civil Service as a whole are low, not attractive and not competitive. Therefore, it is hard for the statistical service to attract and retain officers.

The greatest weakness of the system of manpower data collection in Ghana is the lack of adequate arrangements for the analysis and utilization of population and related data. The following factors are suggested as responsible for the situation: (a) lack of an Analysis and Research Section to analyse and interprete demographic, social and economic data collected through censuses and surveys; (b) inadequate staff of professionals in population or demography with strong background in quantitative analysis; available professional staff are pre-occupied with data collection and are left with little time to devote to comprehensive data analysis; (c) staffing arrangements available for the full utilization of the Wang Computer installation available are not adequate; there is a serious shortage of data processing staff including such senior personnel as data processing manager, computer programmers and operators; consequently, this Computer is not being put to maximum use.

The obvious recommendation that follows from the foregoing points is the need for the revision of working conditions; these revised conditions of service must be such as can attract and retain staff. This revision is a pre-requisite or a condition that has to be fulfilled a prior; otherwise, there is no other way which will enable provisions to be made to enhance the development of a viable manpower data system.

The Central Bureau of Statistics maintains an in-service training scheme, divided into two categories. One category caters for on-the-job training programme; the other provides for training outside Ghana. On-the-job training programme consists on the one hand of training of officers at work by their supervisors; on the other hand, this training takes the form of a formal training embracing the junior middle-level officers. The formal training takes two forms: for one kind, the training is being executed as a project sponsored under United Nations Development Programme (UNDP) and the relevant course is run in the Bureau by a United Nations Officer on secondment to the Bureau; the other one is for those of the junior middle-level officers who have the requisite qualification for admission to take a Certificate course in statistics organised by the

Institute of Statistics, Social and Economic Research (ISSER), Legon. It is being considered to upgrade the training programme being carried out in the Bureau so that candidates who qualify from this course can proceed for further training in Legon for the Diploma course. For external training, only senior middle-level and professional officers benefit: they are sponsored for post-graduate and diploma courses either in the local universities or at suitable institutions overseas. These external training facilities these days have dwindled into minute dimensions, because: (i) the Government faced with foreign exchange constraint is finding it difficult to provide the necessary scholarship facilities; and (ii) fellowships from bilateral sources have reduced to an undesirable minimum level. To revamp the outfit for the development of the manpower data system, it will be necessary for arrangements for fellowship opportunities from donor countries to be stepped up. The ECA can help very much to create the necessary contact not only with international organisations but also with donor countries on bilateral bases.

Similar fellowship recommendations indicated above, apply to what can be done to re-inforce the Central Bureau of Statistics organisational arrangements for developing a competent computer system capability.

(ii) Household Surveys Capability

Reference is often made in manpower studies that there are no comprehensive, reliable and dependable series available in Ghana relating to behaviour of unemployment over a period of time. The information that becomes available on unemployment from population censuses is questioned for its suitability as a measure of unemployment for variety of reasons, partly conceptual (definition of "employment", "unemployment" and "underemployment" used and partly methodological. Dr. M.M. Mehta in his study titled "Population Dynamics of Ghana" has maintained that the census data relating to "unemployment" in Ghana /especially in respect of 1970/ are serious under-estimates primarily owing to: (i) use of a longer reference period of four weeks instead of one week; (ii) the exclusion of persons who were available for work but not actively seeking work (who could have been otherwise included in the rank of "unemployed"); (iii) timing of the Census (March-April being a comparatively busy period when there are less possibilities of persons in the rural areas having gainful employment, etc.

As already pointed out, the labour surveys that are conducted from time to time do not include employment activities taking place in the traditional or informal sector. The total exclusion of this chunk of "economically active labour force" from estimates of the manpower resources available is a serious omission which understates the labour force actually working.

For the foregoing reasons and the need to improve on the manpower data base of the country, it is desirable that a Household Surveys Section be established, to be under the supervision of the Government Statistician. The programme of work this section will execute will aim at producing household statistics embracing subject matters such as demographic characteristics, health, food consumption and nutrition housing conditions and facilities, educational characteristics and cultural activities, employment and economic level of the household: all these subject matters impinge on manpower studies.

The staffing composition of the Household Surveys Section is suggested to be as follows: 2 (two statisticians (one to be an Economic Statistician, the other a Sampling Statistician), an Assistant Statistician; the existing field Organisation to be increased in relation to the scale of the sample surveys the Section will undertake; (three) senior middle-level officers, and 8 (eight) or 10 (ten) junior middle-level officers.

(iii) Analysis and Research Section

Because of shortage of staff in the Demography and Social Statistics Division of the Central Bureau of Statistics, the staff are wholly always occupied in the processing and publication of the census and surveys results. Aside this handicap, there is no trained officer with a background in quantitative analysis. Consequently, the staff are not able to carry out analysis of the demographic and socio-economic results. There is, therefore a gap in the development of manpower data analysis.

It has already been alluded to earlier that the Demographic and Statistical Service Section of the Manpower Secretariat does not seem to have adequate capability to enable it to address itself sufficiently to the responsibilities assigned to it because of manpower shortage; for, if this were not the case, the manpower survey conducted in 1968 could have been published; also, the survey could have been repeated time and again.

As a result of the foregoing handicaps, it is recommended that an Analysis and Research Section be set up under the supervision of the Government Statistician to address itself to filling these gaps in the manpower data system as well as expand the scope of the functions of manpower data system. This Section will require two fairly senior persons to organise it, one being a Population Analyst and the other a Demographer with adequate background in analytical techniques and knowledge of economics, statistics and sociology. The setting up of this section automatically implies that the Manpower Secretariat does not need to keep the Demographic and Statistical Service Section now operating under its auspices: this arrangement will preclude the duplication of activities. This recommendation reflects the maxim that the work of the professional statistician should be detached from the processes of economic research (and for that matter, planning). Even the Lord High Executioner in the Mikado was explicit as to the capacity in which he was acting, in arriving at any of his various decisions.

It is understood that an officer from the Manpower Secretariat is undergoing a course in manpower analysis under the UNFPA fellowship scheme. After the completion of the course, this officer should be attached to the Central Bureau of Statistics. In order to provide for a Demographer with a quantitative background, there will be need for another fellowship of two years' duration: these two officers will need to team up and establish the Analysis and Research Section.

(iv) Plant, Equipment and Vehicles

A number of items of the above facilities at the disposal of the Central Bureau of Statistics are near the state of condemnation. Most of them are old and it is becoming more and more difficult to obtain supplies and spare parts to maintain them because of the present economic situation of the country. An assistance is, therefore, required, formulated as follows:

(a) Plant: 6 (six) new Gestetner Duplicating Machines 2 (two) new Photographic Cameras for printing: all items to include accessories

(b) Equipment: 10(ten) new Typewriters; 25 to 30 new Calculating Machines (desk type).

(c) Transport: 20 to 25 Motor Vehicles (Land Rover Type); 20 Motor Bicycles; 3(three) Saloon Cars; all above items to be provided with essential spare parts.

(v) Field Organisation

As pointed out in the previous sections of the study, an ad hoc field organisation is always established for purposes of conducting population censuses and surveys. As soon as the field work involved is completed, then the personnel used in the field exercise return to their parent organisations. This ad hoc nature of the field organisation does not make for the accumulation of experience in data collection. So, it would appear as desirable that such an organisation be retained to form part and parcel of the statistical service system. Such an arrangement apparently would be desirable to be maintained, but for practical reasons, a field force of that dimension cannot be maintained if the personnel will not be employed all the time. The Central Bureau of Statistics has a permanent field organisation and, therefore the thing to do is to gradually build it up over time and make it come to serve for all purpose field statistical work.

(vi) The Statistical Service Board

The setting up of a Statistical Service Board to form part of the public services of Ghana and incorporate the existing Central Bureau of Statistics is an innovative measure for the development of a statistical service in Ghana. Such a design will make it possible for the organisation of the statistical service to be a body independent of the Civil Service. One hopes that such an independent body will help improve the present condition of the statistical staff, offer better salaries and working conditions for the staff; with these improvements, it may become possible to reduce the present exodus of professional staff and thus improve statistical work in the country.

For the Statistical Service Board to be an effective instrument in the development of the statistical service of Ghana, all data collecting agencies of the Government will need to be attached to it. From this condition, it, therefore, follows that the development of a national manpower data system must come under the purview of the Board.

The various statistical tables given in this Appendix which follow in the subsequent pages relate to manpower data available in Ghana. The tables given are meant to illustrate as well as emphasize the need that manpower data available should be put into some form, to be readily available for decision-making.

TABLE I

POPULATION, LABOUR FORCE AND REAL GROSS NATIONAL PRODUCT IN GHANA

	Unit	1960	1970	1980	1984
Population	Thousand	6,726.6	8,559.3	11,500[1]	12,210.8[2]
Labour Force	Thousand	2,723.0	3,531.6	..	..
Employment	Thousand	2,559.4	3,133.0	..	..
Real Gross National Product	Million Cedis	716	1,158	5,200	..

(1) Interpsensal estimate

(2) Preliminary results of the 11th March, 1984 Population Census

.. Not available

Source: Population Census of Ghana Reports and the Quarterly Digest of Statistics published by the Central Bureau of Statistics.

TABLE II

DISTRIBUTION OF POPULATION AGED 15 YEARS AND OVER BY TYPE OF ECONOMIC ACTIVITY

Unit: Thousand

Economic Activity	1960	1970
Employed	2,559.4	3,133.0
Unemployed	163.6	198.6
Voluntarily unemployed	0.1	2.1
Home makers	655.1	625.4
Students	147.9	392.0
Vocational trainees	14.9	1.7
Disabled	148.3	166.3
Income recipients	3.2	8.1
Others	4.9	4.8

Source: De Graft-Johnson et al (1974) Table 2(a) - 1960 Census Vol. 4

Table 3

INDUSTRIAL DISTRIBUTION OF LABOUR FORCE IN GHANA

(in percentages)

Broad Industrial Groups	1960	1970
Agriculture	56.8	57.2
Mining	1.9	1.0
Manufacturing	9.1	12.9
Construction	3.5	2.3
Utilities	0.6	0.4
Commerce	14.5	13.9
Transport and Communications	2.6	2.7
Services	6.0	10.5
TOTAL EMPLOYMENT	100.0	100.0

Source: Population Census of Ghana Report

Table 4

OCCUPATIONAL DISTRIBUTION OF GHANAIAN LABOUR FORCE

Occupation	1975	1980
Administrative and Managerial	12,528	15,660
Professional	17,687	22,110
Middle-level Sub-Professional and Technical	92,417	115,521
Middle-level Administrative and Managerial	65,950	82,437
Skilled Craftmen and Tradesmen	79,641	99,600

Source: Ghana Manpower Establishment Survey (1973-1975) (Unpublished) Ghana Manpower Board (Extracted from Five-Year Development Plan 1975/76 - 1979/80 Part II)

Table 5
OCCUPATIONAL DISTRIBUTION OF GHANAIAN LABOUR FORCE BY LEVEL OF EDUCATION (in percentage)

Occupation	Illiterate	Attended Elementary School	Attended Secondary School	Attended University
Administrative/Managerial	13.3	45.1	32.9	8.7
Professional/technical and clerical	13.4	50.1	29.3	7.2
Production and Related Workers	66.2	32.8	1.0	-
Service Workers	69.0	29.4	1.6	-
Sales Workers	85.8	13.5	0.7	-
Farmers, Fishermen, Hunters and Forestry Workers	91.2	8.7	0.1	-
Total Employment	81.6	16.5	1.7	0.1

Source: Population Census of Ghana 1960 Report (Extracted from Dr. M.M. Mehta's "Population Dynamics of Ghana publication).

Table 6

GHANAIAN LABOUR FORCE BY EMPLOYMENT STATUS

	1960	1970
Total Wage Employment	590,125	757,064
Total Self-Employed	1,627,023	1,965,139
Total Unpaid Family Workers	342,235	410,839
Total Employed	2,559,383	3,133,042

Source: Population Census of Ghana Report (Extracted from Dr. M.M. Mehta's "Population Dynamics of Ghana" Publication).

Table 7

DISTRIBUTION OF REGULAR WAGE-PAID EMPLOYMENT
IN PUBLIC AND PRIVATE SECTOR

Sector	1970
Public Sector	
Central and Local Government (Civil Service)	248,748
Public Corporations	121,073
Total Public Institutions	369,821
Private Sector	
Private Enterprises	282,319
Total Employment	652,140

Source: Population Census of Ghana Report 1970 (Extracted from Dr. M.M. Mehta's Population Dynamics of Ghana publication)

Table 8

TOTAL EMPLOYMENT BY PUBLIC AND PRIVATE SECTORS IN GHANA
1970

Sector	Percentage
Public Sector	11.8
Private Sector	88.2
Total	100.00

Source: Population Census of Ghana Report 1970 (Extracted from Dr. M.M. Mehta's Population Dynamics of Ghana publication)

Table 9

DISTRIBUTION OF NON-GHANAIAN LABOUR FORCE BY INDUSTRY

Industry	1960	1970
Agriculture	166,350	130,939
Mining	21,065	5,789
Manufacture	[illegible]	78,629
Utilities	3,317	1,335
Construction	20,770	9,029
Commerce	87,252	29,626
Transport and Communications	12,683	9,851
Services	34,116	76,214
Total	377,314	250,997

Source: Population Census of Ghana Report (Extracted from Dr. M.M. Mehta's Population Dynamics of Ghana publication).

Table 10

GROWTH OF URBAN POPULATION IN GHANA

Census Year	Total Urban Population	Percentage of Total Population
1931	295,000	8.3
1948	528,900	12.9
1960	1,538,000	23.0
1970	2,429,100	28.4

Source: N.D. Addo: "Trends and Prospects in Migration in Ghana", Paper presented at the First National Conference on Population held in Accra, May 6-9, 1974. (Extracted from Dr. M.M. Mehta's Population Dynamics of Ghana publication).

Table 11

INTER-REGIONAL MIGRATION IN GHANA

(Net Gain (+) or Loss (-) from Migration

1970

Region	Number of Migrants Gains (+) or Losses (-)
Greater Accra	222,809
Western Region	123,900
Brong Ahafo Region	117,291
Ashanti Region	72,403
Northern Region	-37,684
Eastern Region	-99,645
Central Region	-131,286
Upper Region	[illegible],707
Volta Region	-169,093

Source: Kodwo Ewusi: "The Socio-Economic Determinants of Inter-Regional Migration in Ghana, (Mimeographed Paper, ISSER, Accra 1974 (Estracted from Dr. N.M. Mehta's Population Dynamics of Ghana publication).

Table 12

DISTRIBUTION OF EMPLOYMENT BY INDUSTRIES

Industry	Number employed	
	1960	1970
Agriculture	1,582,331	1,[illegible],713
Mining	48,221	30,987
Manufacturing	233,947	376,377
Construction	88,653	73,579
Utilities	14,189	12,243
Commerce	371,131	435,967
Transport and Communication	67,823	84,327
Services	154,088	328,849
Total	2,559,383	3,1[illegible],042

Source: Population Census of Ghana Report. (Extracted from Kodwo Ewusi's publication, "The size of the Labour Force and Structure of Employment in Ghana")

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